

ABSTRACT OF THE DISCLOSURE

The present invention involves a fill consisting of a plurality of plates that are pre-assembled into fill packs for application as fill media in cooling towers. A unique spacing and fastening system is employed to assemble individual plates into fill packs. The spacing system of the current invention utilizes a tube or rod which traverses apertures in the plates of the fill pack. The tube or rod is flattened or expanded in the area between the fill plates, thus locking the fill plates in place. The spacing system of the current invention provides substantially complete adjustability of the pitch of the fill plates. Alternatively, plate spacing can be effected by employing integral protrusions which bond to adjacent plates. The plates are designed to deploy a large amount of surface area in a compact volume and to allow free flow of fluids through the media. The plates utilize a ribbed structure which creates a relatively high strength-to-weight ratio for the individual plates. The plate ribs slightly increase air flow turbulence and therefore heat transfer, while not adversely affecting flow velocity of the liquid to be cooled. Since flow velocity of the liquid to be cooled remains high, the plates of the current invention are low fouling. The plates can be employed in other applications such as trickle filters in wastewater plants or as catalyst carriers in chemical processes. In one exemplary embodiment, plates are made of ceramic material.